

Amendments to the Claims

Listing of the Claims

1. (Canceled)
2. (Canceled)
3. (Withdrawn) The nozzle tip of claim 1, wherein the junction is oriented at an angle from radial.
4. (Canceled)
5. (Withdrawn) The nozzle tip of claim 1, wherein the first portion is a tip portion and the second portion is a cap.
6. (Withdrawn) The nozzle tip of claim 1, wherein the first portion is a retaining plate for a multi-probe nozzle tip, and the second portion is a seal ring.
7. (Withdrawn) An injection molding manifold bushing, comprising: a first portion, and a second portion fused to the first portion at a junction, the first and second portions being made of different materials.
8. (Withdrawn) An injection molding nozzle valve stem, comprising: a first portion, and a second portion fused to the first portion at a junction, the first and second portions being made of different materials.
9. (Withdrawn) The valve stem of claim 8, wherein the second portion is a tip end of the valve stem.
10. (Withdrawn) An injection molding nozzle housing, comprising:

a body portion, and a flanged portion fused to the body portion at a junction, the body portion and flanged portions being made of different materials.

11. (Withdrawn) An injection molding nozzle tip insert comprising: a shank portion, and an end portion fused to the shank portion at a junction, the shank portion and end portions being made of different materials.

12. (Withdrawn) A method of making an injection molding nozzle tip component with a seal ring, comprising the steps of:
forming a first portion of the nozzle tip component from a first material;
forming a seal ring from a second material;
aligning the seal ring to the first portion at a junction whereat a surface of the seal ring abuts a surface of the first portion; and
fusing the first portion and the seal ring together at the junction.

13. (Withdrawn) The method of claim 12, wherein the fusing is done by electron beam welding.

14. (Withdrawn) The method of claim 12, further comprising the step of machining the fused first and second portions to a final configuration which removes material adjacent the junction.

15. (Withdrawn) The method of claim 12, wherein the aligning is done by an alignment feature formed on the first and second portions.

16. (Withdrawn) The method of claim 15, wherein the alignment feature is a ridge formed in one of the portions and a recess formed in the other portion, the recess receiving the ridge to align the portions.

17. (Withdrawn) A method of forming an injection molding nozzle tip component, comprising the steps of:

forming a first blank for a first portion of the nozzle tip component;

forming a second blank for a second portion of the nozzle tip component;

abutting the second blank against the first blank at a junction;

fusing the first blank and second blank at the junction; and

machining the fused first and second blanks to a configuration for the first portion and second portion of the nozzle tip component.

18. (Withdrawn) The method of claim 17, wherein the fusing is done by electron beam welding.

19. (Withdrawn) The method of claim 18, wherein the first portion is a tip retainer and second portion is a seal ring.

20. (Canceled)

21. (Withdrawn) The nozzle tip according to claim 1, wherein the first and second portions have a melt channel with an outlet aperture for communicating a molten material, and further including a valve stem that axially reciprocates in the melt channel.

22. (Withdrawn) The nozzle tip according to claim 21, wherein when the valve stem moves into the outlet aperture, the valve stem stops the flow of molten material therethrough.

23. (Withdrawn) The nozzle tip according to claim 22, wherein when the valve stem moves away from the outlet aperture, the molten material may pass therethrough.

24. (Canceled)

25. (Canceled)

26. (Canceled)

27. (Canceled)

28. (Canceled)

29. (Withdrawn) The nozzle tip according to claim 28, wherein the plurality of portions have a melt channel with an outlet aperture for communicating the molten material, and further including a valve stem that axially reciprocates in the melt channel of the nozzle housing, the melt channel of the tip retainer, and the outlet aperture.

30. (Withdrawn) The nozzle tip according to claim 29, wherein when the valve stem moves into the outlet aperture, the valve stem stops the flow of molten material therethrough.

31. (Withdrawn) The nozzle tip according to claim 29, wherein when the valve stem moves away from the outlet aperture, the molten material may pass therethrough.

32. (New) A method for manufacturing a nozzle tip for a hot runner system, the nozzle tip having a first portion and a second portion, the method comprising the acts of:

selecting a first material having a thermal conductivity for the first portion of the nozzle tip;

selecting a second material for the second portion having a thermal conductivity lower than the thermal conductivity for the first portion; permanently joining the first portion to the second portion; and thereafter, machining at least one of the first or second portions of the nozzle tip.

33. (New) The method for manufacturing a nozzle tip according to claim 32, wherein the act of permanently attaching is performed by electron beam welding.

34. (New) The method for manufacturing a nozzle tip according to claim 33, further comprising the act of providing an internal passageway through the first and second portions for molten plastic to pass therethrough.

35. (New) A method of manufacturing a hot runner nozzle tip component, comprising the acts of:

machining a first blank for a first portion of the nozzle tip component, wherein the first portion has an internal bore;

machining a second blank for a second portion of the nozzle tip component, wherein the second blank has an internal bore in fluid communication with the internal bore of the first portion;

abutting the second blank against the first blank at a junction;
fusing the first blank and second blank at the junction; and
thereafter, machining the fused first and second blanks to a configuration for the first portion and second portion of the nozzle tip component.

36. (New) The method of claim 35, wherein the fusing is performed by electron beam welding.

37. (New) The method of claim 36, wherein the first portion is a tip retainer and second portion is a seal ring.